

This listing of claims will replace all prior versions
and listings of claims in the application:

LISTING OF CLAIMS

-1- (Currently Amended)

1 A mesostructured crystalline hydrated alumina
2 composition which is microporous and consists essentially
3 of boehmite with atomically ordered walls forming
4 mesopores and exhibiting at least one low angle x-ray
5 diffraction line corresponding to a lattice spacing of at
6 least 2.0 nm and multiple wide angle x-ray diffraction
7 lines with CuK α radiation wherein λ is 0.1541 nm
8 corresponding to an ordered lattice comprised of oxygen
9 atoms and hydroxide groups with aluminum in interstitial
10 positions within the lattice, wherein the surface area is
11 at least 200 m²/g; and wherein the pore volume is at least
12 0.40 cm³/g, wherein the boehmite is formed by mixing an
13 amorphous hydrated alumina and an organic modifier which
14 forms the mesostructure and then heating the mixture so
15 that the boehmite is completely formed and then removing
16 water and the organic modifier to provide the
17 composition.

Claim 2 (Cancelled)

-3- (Currently Amended)

1 A mesostructured crystalline hydrated alumina
2 composite composition with mesopores containing an
3 organic modifier in the mesopores of the alumina wherein
4 the alumina composition consists essentially of boehmite
5 with atomically ordered walls forming mesopores and
6 exhibits at least one low angle x-ray diffraction line
7 corresponding to a lattice spacing of at least 2.0 nm and
8 multiple wide angle x-ray diffraction lines corresponding
9 to an ordered lattice comprised of oxygen atoms and
10 hydroxide groups with aluminum in interstitial positions
11 within the lattice, wherein the boehmite is formed by
12 mixing an amorphous hydrated alumina and the organic
13 modifier which forms the mesostructure and then heating
14 the mixture so that the boehmite is completely formed to
15 provide the composition.

-4- (Previously Amended)

1 The composition of Claim 3 wherein the organic
2 modifier is a non-ionic surfactant.

-5- (Previously Amended)

1 The composition of Claim 4 wherein the
2 surfactant is selected from the group consisting of a
3 polyethylene oxide block co-polymer, an alkylene amine;
4 an alkylene polyamine, a polypropylene oxide amine, a
5 polypropylene oxide polyamine and mixtures thereof.

Attorney Docket No. MSU 4.1-553
Appl. No. 09/917,147
Amdt. Dated: Nov. 16, 2004
Response to Office Action mailed 9/08/2004

-6- (Previously Amended)

1 The composition of any one of Claims 3, 4 or 5
2 wherein the hydrated alumina component is boehmite.

-7- (Currently Amended)

1 A mesostructured crystalline transition alumina
2 composition comprising gamma alumina and:

3 wherein the composition exhibits at least one
4 low angle x-ray diffraction line corresponding to a
5 lattice spacing of at least 2.0 nm and derived from a
6 boehmite with atomically ordered framework walls forming
7 mesopores multiple wide angle x-ray diffraction lines
8 with CuK α radiation wherein λ is 0.1541 nm corresponding
9 to an ordered oxygen atom lattice with aluminum in
10 interstitial positions within the lattice, wherein the
11 surface area is at least 200 m²/g; and wherein the pore
12 volume is at least 0.40 cm³/g, wherein the boehmite is
13 formed by mixing an amorphous hydrated alumina with an
14 organic modifier which forms the mesostructure, heating
15 the solution so that the boehmite is completely formed,
16 then removing water and the organic modifier from the
17 mesostructured boehmite, and then calcining the
18 mesostructured boehmite to form the gamma alumina
19 composition.

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-8- (Previously Amended)

1 The mesostructured transition alumina of Claim
2 7 wherein the transition alumina consists essentially of
3 gamma alumina.

Claims 9 - 26 (Cancelled)